REVIEWS

A NATIONAL POLICY FOR THE OIL INDUSTRY. Eugene V. Rostow. New Haven: Yale University Press, 1948. Pp. xvi, 158. $2.50.

WITH admirable lucidity and conciseness, Professor Rostow describes, analyzes, and prescribes for the petroleum industry in a brief 150 pages. The analysis is almost unfailingly perspicacious from the economic (as no doubt it is also from the legal) viewpoint, and the major outlines of his proposed remedial policy are, I think, both correct and generally effective in dealing with the monopolistic elements in the industry. The volume sets a brilliant precedent for the new Yale series on public policy.

It would serve no useful purpose to distill into a paragraph or two the already condensed description and analysis of the industry that Professor Rostow has given. A listing of the major topics must suffice: the size and functional distribution of firms; the system of oil law; the present "conservation" system and its price-regulatory workings; the control of transportation and brands by the major companies; the international position and activities of the industry; and the measurement of monopoly power. Only two chapters seem to me to fall materially below the high level of the book: that on foreign relations is too condensed and is disproportionately concerned with recent political developments; and that on monopoly power is inconclusive and, I think, fundamentally misdirected because Professor Rostow has followed the (wrong!) economists too closely.

It may be permissible, however, to argue one detailed statement: "The strong, separate regional Standard Oil companies, all integrated, and almost entirely non-competitive, have been the polar forces in the market."[1] This popular myth is usually advanced as an argument against trust-busting; in Professor Rostow's scheme it is only a minor inconsistency with his general position. The view that the dissolution of the original Standard Oil company was a failure is mistaken. The original company long controlled more than 90 per cent of the refinery output of the industry; the successor companies had about 40 per cent of this output in 1938, and the growth of rivals—major and minor—is surely attributable in part to the original dissolution. The extent of leadership provided by the successor companies has diminished in every area of the country, so by 1938 no successor had more than 28 per cent of the sales of gasoline in its area. One simple measure of the competition among successors is the gasoline sold in each area by the most important successor as a percentage of all sales in that area by successor companies. With completely segregated markets, the percentage would be 100, and with complete overlapping of market areas it would be about 25. It ranged from 28 to 72 per cent in the 11 market areas in 1938, and averaged 54 per cent. Again, on average there were 4 successor companies in each market area. One may well complain that the

1. P. 7. See also p. 14.

original dissolution did not go far enough, but surely not that it did not go anywhere.[2]

Professor Rostow's proposals for reform are so old-fashioned as to be radical. One pillar of his program is the use of compulsion to achieve "unitization"—the operation of each oil field as a single technological unit. This proposal has little reference to monopoly: if each field were separately owned, the concentration of production of crude petroleum would be reduced only moderately relative to the present concentration—which is probably all that is needed. Rather the purpose is conservation—the avoidance of rivalry among the owners of land over a field, each seeking to maximize his product, not that of the field.

The other pillar of his program is the vertical disintegration of the twenty largest companies, and sufficient horizontal dissolution at all stages except transportation (where the ICC would assume closer control) to insure competition. Professor Rostow properly holds that substantial dissolution would entail no serious losses of technological economics. He argues, convincingly to this layman, that this part of the program could be carried through without additional legislation, under the recent interpretations of the Sherman Act.

My only quarrel with these proposals is that they are ends much more than means. One wishes a closer analysis of unitization: for example, what implications has it for the exploration for new fields? One would like to know the areas and necessary extent of dissolution in order to attain a satisfactory amount of competition in the industry. Such remarks, I suppose, mean chiefly that an excellent large book contains more information than an excellent small one. But they mean a little more: a vague reform is more likely to command assent than support.

GEORGE J. STIGLER†

THURMAN ARNOLD once remarked that some of those who labor in the Anti-Trust Division of the Department of Justice acquire only a worm's eye view of American industry. It is from such a point of view that Professor Rostow struggles to define "a national policy for the oil industry." After castigating the oil business in general and the "major" companies in particular through 100 pages of disjointed statistics, fallacious assumptions and semantic argument, the author—himself an Anti-Trust lawyer—comes forth with the legalistic conclusion that the oil industry ought to be run by Anti-Trust lawyers.

Of course, Professor Rostow does not put this conclusion quite this baldly. But it is only very thinly disguised. What he proposes is that Section Two of the Sherman Act shall be stretched by judicial "interpretation" to permit the Federal Anti-Trust Division to seek injunctions to disintegrate such selected units of the oil industry as the Department's lawyers decide are "too big." Laymen may swallow the fiction that it is not the Anti-Trust Division but the

2. For more detailed information, see FTC, REPORT ON DISTRIBUTION METHODS AND COSTS, Part IV (1944), from which the above is taken.

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Attorney General who decides what cases shall be brought and that courts, not lawyers, decide what decrees shall issue. But the author of this book has had too much legal experience with the Federal Government not to know that with complicated Anti-Trust matters, lawyers down the line actually decide upon both the complaints and the decrees which busy Cabinet officers and overworked courts are persuaded to sign.

Since he is unencumbered by the fundamental facts of the industry about which he writes, Professor Rostow finds it legalistically simple to evolve a national policy which will kill the big bad monopoly which his imagination has created. In searching out his factual material, there is little to suggest that the author ever strayed beyond the confines of his office or the prejudiced and inaccurate writings of Cooke and Watkins who are cited throughout the book. Certainly, no one who had ever even walked through a modern refinery could make his statement on refining capacity that statistics are "arbitrary" because they measure only "the amount which could be produced if all refineries worked a one-shift day, six days a week."[1] Both the technology and economics of refining compel continuous operation twenty-four hours per day, seven days per week, month in and month out. Like a blast furnace, it costs tens of thousands of dollars to shut down and start up. No statistics measuring refining capacity are compiled on an "arbitrary" basis which fails to take into account the continuous character of petroleum refining.

Lest it be believed that this unbelievable misunderstanding of the meaning of refining statistics is just an isolated error, the book abounds with so many erroneous statements that it would require a book rather than a book review to recite them. Thus, refining processes are described as "not technically unique or especially difficult to use."[2] This is fantastic! The truth is that the development, practice and use of catalytic cracking, isomerization, alkylation, hydrogenation, polymerization, solvent refining and a host of other processes for tearing asunder and recombining the hydrocarbon molecules of petroleum are so complex as to require scientific and managerial talent surpassing that of most other industries.

In dealing with the problems of crude oil production, Professor Rostow displays an equally astonishing lack of knowledge. For example, he says that state "well spacing regulations are honored largely in the breach" and that regulatory bodies are hard put to refuse exceptions since "that may be the only way to permit the owner of a small surface tract his individual chance to reach oil."[3] This simply proves that the basic facts of production have been ignored as badly as those in refining. Just a little research would have disclosed that today exceptions to the spacing rules ordered in newly discovered oil fields are infrequently granted. Most states can now compel the pooling of small tracts which renders exceptions unnecessary. Furthermore, since it is now common practice to accompany an exception with a cut in the allowed production, this

1. P. 48.
2. P. 68.
3. P. 36

generally results in voluntary pooling in lieu of asking for the exception. Here as elsewhere throughout the book, sweeping conclusions are based on utterly inadequate evidence—in this instance, a few law cases relating to but a single oil field (East Texas)—arising out of conditions and regulations existing over fifteen years ago and which are in no sense representative of present day practice in either East Texas or elsewhere.

Professor Rostow condemns "our present system of production control" as one that "can make little or no contribution to the goals of a conservation program." This runs so contrary to actual experience over the past few decades that it is difficult to credit the statement as coming from a scholarly source. It was not back in the dark ages that the lack of production control resulted in frightful physical waste. It was only yesterday, in the late twenties and early thirties before production control took hold, that the great East Texas field was marked for a hundred miles by columns of smoke by day and pillars of fire by night while tens of millions of barrels of high grade oil ran down the creeks or was poured into earthen pits. It was only yesterday that in the mad rush to produce the oil from beneath neighboring lands, Kettlemen Hills in California was permitted to blow a billion cubic feet of natural gas into the air each day and Sante Fe Springs in the same state blew enough gas in a few short years to supply the whole city of Los Angeles for a quarter of a century.

Production control in the form of crude oil proration has not been a perfect instrument of conservation. But without it, the great East Texas field would not have been left to fill the Big Inch lines to fight the war in Europe and the recoverable reserves of this one field would not have been increased from an estimated two billion barrels to a present calculated five billions and more barrels. Without proration, even though voluntary, and even if in violation of Professor Rostow's personal views of the Anti-Trust laws, the great Wilmington field in California would have "blown its head off" in the late thirties and have been unable to provide a hundred thousand barrels per day to fuel the war in the Pacific.

Of course, no one will deny that in the course of its evolution, proration as practiced has sometimes been improperly administered and perverted to ends not reasonably related to conservation. It is doubtful, however, whether compulsory unit operation under a Federal Statute as suggested in this book would do better. Certainly, few independent producers would regard it as anything but a law which would play into the hands of the majors. Moreover, no matter how simple it may seem to the unitiated to "define the limits of an oil field," it is only simple *after* it has been done. Ascertaining just what sands and limestones were deposited hundreds of millions of years ago, how they have been faulted and twisted and cemeted since then, and where they now lie buried beneath hundreds and thousands of feet of overlying rocks requires far more than what Professor Rostow describes as "technical inspection services" and "administrative procedures for determining the boundaries of oil producing units." As often as not, great oil fields are found and extended by wildcatters who are right for the wrong reason. Indeed, the very best geologists would be

the last to believe that "administrative procedures" can be used to define oil fields. Only the drill and someone risking his money can really define an oil field. Proration has its faults, but in permitting drilling and then adjusting allowed production to the size of the drill site and the production characteristics of the individual well, it can and does today achieve most of the theoretical advantages claimed for compulsory unit operation. In drilling for oil, it has been said that it is good to be good but it is better to be lucky. Oil found by luck is just as useful to society as oil found by science and the most scientific regulation cannot yet substitute for the freedom to drill in the "wrong" places.

From production and refining, Professor Rostow goes on to transportation and marketing. Pipelines, tankers, refineries and service stations, are all said to be largely owned or controlled by the "majors"—arbitrarily defined as the twenty-odd "biggest" companies in the industry. According to this book, major companies "integrate" by owning facilities in all branches of the industry in order to extort "monopolistic" profits from the public. Integration thus becomes the crime of crimes for which the industry must be held to account.

What Professor Rostow fails to comprehend is that units in the oil industry integrate not to monopolize but to compete—not to raise prices but to cut costs. The "biggest" twenty today were not the twenty biggest twenty years ago nor are they likely to be twenty years hence. Most of them grew big by producing more, transporting cheaper, refining better, improving their service and cutting prices—all on an integrated, mass production basis. Every aggressive independent strives to do the same thing and runs the risk of becoming one of the majors of tomorrow.

Oil is a mass production industry. Its operations are continuous from the well-head through pipelines, tankers, barges, tank cars, refineries, terminals and trucks to jobbers, dealers and service stations. Except when repairs are required, almost every important operation runs twenty-four hours a day, every day in the year. In times of scarcity, refiners build pipelines, buy tankers, operate barges and seek production to keep their refineries going. In times of surplus, both producers and refiners integrate both to cut costs and to reach the markets to keep operating. It makes as much sense to disintegrate the oil industry by a series of injunctions as it would to chop up the assembly of automobiles into a series of uncoordinated and separate steps. It would convert a relatively efficient mass production industry into a middle man's paradise where tolls in the form of four or five commissions would have to be paid on each gallon of oil enroute from the well to the ultimate consumer.

Of course, the oil industry is a long way from perfection. All is not sweetness and light between majors and independents. Sometimes, the richest rather than the fittest survive. Sometimes, greed and avarice and unlovely cut-throat tactics control as against what some of us might think a more socially desirable policy. Yet, few who have worked in oil since the end of World War I would ever name a lack of competition as one of the ills of the industry. Indeed, even Professor Rostow has trouble here. He seeks escape from reality by viewing the daily struggle of many suppliers to sell petroleum

products at every cross-road not as "competitive" but as "monopolistic competition." And although his researches tell him that there are at least twenty big companies "monopolistically competing," he begs the question of "monopoly" by plastering the twenty biggest with the label, "oligopoly."

As with so many regulatory theories, the proposed national policy of disintegration is justified in the name of free enterprise. But free enterprise in oil cannot be maintained by a dictatorship of trust-busters, firing complaints and executing decrees against such contradictions in terms as "oligopoly" and "monopolistic competition." The preservation of free enterprise in oil lies in preventing any single group, whether with the Department of Justice, the Interior Department, Yale University or the oil industry itself, from imposing upon the industry, regardless of how well intentioned, their own exclusive ideas of how it shall be run and operated. No dictatorship remains benevolent very long—even a dictatorship of lawyers and economists. The power to initiate proceedings to disintegrate and pulverize any part of an industry thought to be "too big" gives dictatorial powers over the whole industry. He who goes free today while his competitor is "disintegrated" will surely die tomorrow when the tides of politics run against him. And while Professor Rostow might trust himself to decide what companies or what sections of the assembly line of the oil industry should be cut apart, the chances are he will not find the results to his liking when the power falls, as surely sooner or later it must, into the hands of those who do not share his particular theories.

J. HOWARD MARSHALL†

REPORTS OF THE SPECIAL TAX STUDY COMMITTEE TO THE COMMITTEE ON WAYS AND MEANS, HOUSE OF REPRESENTATIVES. Washington, D. C.: U. S. Government Printing Office, 1947. Pp. iv, 65.

IT WAS none other than Roswell Magill himself, writing in the Journal of Accountancy, who last year described Randolph Paul's *Taxation for Prosperity* as "the book of an advocate, not of a thoughtful student who wishes to present all the data on tough fiscal problems as objectively as he can. . . ."[1]

Semantics being what it is, I suppose Randolph Paul is indeed an "advocate." He is an advocate of the public interest, seen broad and whole, rather than narrowly through the squinted eyes of some special group, hard dedicated to self-serving ends. More specifically, Randolph Paul—a man whose sheer technical competence in the field of federal taxation at least equals, if it does not excel, that of any tax expert in the nation today, and whose lucrative private tax practice reflects this fact—has never, to my knowledge, slanted his

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1. Magill, *Randolph Paul's Tax Philosophy: How Taxation is Used as a Social Tool*, 83 J. ACCOUNTANCY 402, 404 (1947).

public or published views on tax policy toward the protection of his own chief source of income, or the interests of his own top-bracket clients. Instead he has boldly and consistently championed all manner of tax plans and reforms and revisions whose adoption would mean (and in some cases has meant) financial loss to himself and to the wealthy persons and companies who buy his counsel.

Unfortunately, the gentleman who brands Mr. Paul an "advocate" is himself an advocate—but of quite a different breed. Mr. Magill is an advocate, from away way back, of views so patent and predictable that he is almost automatically asked to serve on all those businessmen's "tax committees" that buy ads urging tax reduction at the top; that he was invited by right-wing Republican Congressman Knutson to head a special tax study, intended to give non-political tone to the Congressman's preconceived plans to relieve the rich of some of their federal tax burden; that more recently, he has been appointed by the State of Connecticut's right-wing Republican regime to head a quite similar tax study for quite similar reasons.

In fact, Mr. Magill's ideas on taxes are so very predictable—and, I regret to add, so very partisan—that it bothers me a bit to see a scholarly journal still taking him sufficiently seriously to want his work reviewed. For what I am supposed to be doing here is reviewing Mr. Magill's (and colleagues') report to Congressman Knutson and his Ways and Means Committee. And having reviewed Mr. Magill's *The Impact of Federal Taxes* in these pages, just five years ago,[2] I confess to a feeling of—Why go over that same old stuff again?

It is the same old stuff, all right—as Congressman Knutson well knew it would be. Now, as then, Mr. Magill is terribly concerned about the threat to "venture capital" and hence to "the free enterprise system" that he sees embodied in high taxes, especially on corporations and corporate investors. (Despite Mr. Magill's doomful warnings of five years back, corporate profits *after taxes* are today at an all-time high.) Now, as then, Mr. Magill is terribly concerned about the pitiful people in the upper upper income brackets, whom he specifies at one point as those with net incomes of at least $50,000. ("Our businesses are managed by men with incomes of these amounts. Our country has grown great by the chances we have offered to every country boy and workingman to build himself up by his industry and thrift . . ."[3] etc., etc. Whereas, today, such noble incentives "are being smothered and destroyed by a tax system which, instead of rewarding people . . . punishes them with a graduated penalty that increases with their success."[4])

Out of this philosophy (need I go on?) spring Mr. Magill's (and colleagues') specific recommendations. They range from the usual bleat at "double" taxation of dividend income (I dealt with this in detail five years

2. Rodell, Book Review, 52 YALE L. J. 424 (1943).

3. Reports of the Special Tax Study Committee to the Committee on Ways and Means, House of Representatives 9 (1947).

4. *Id.* at 11.

ago)[5] to a plea that a larger share of the federal tax load be shifted to non-graduated excise taxes. ("The citizen himself determines the amount of taxes he pays. . . . If he doesn't drink much, if he doesn't smoke much, the Federal levies don't seriously bother him.")[6] They range from a wish to extract the teeth of almost edentulate Section 102 (penalizing the hoarding of corporate profits) to a desire to emasculate the *Clifford* rule, as interpreted by the Treasury, so that trusts can again serve as invitation to tax evasion.

But for me to review Mr. Magill's recommendations piecemeal, with appropriate comments added, would be a work of superfluity. That job has already been masterfully done—and with far more restraint than I could command—by Professor William L. Cary; and I should like to incorporate by reference here his devastating dissection of the Magill report which recently appeared in the Columbia Law Review.[7] Let me take up instead, and briefly, what strikes me as Mr. Magill's (and colleagues') major sin, not of commission, but of omission.

In a preliminary "Summary of Major Recommendations," Mr. Magill says: "Since the tax load now falls so heavily upon all classes of citizens, it is important that like incomes bear like burdens. No kind of income, nor any class of taxpayer, should be discriminated against or, by the same token, should any class of taxpayer enjoy special advantages."[8] That is pleasant and pious talk. Yet Mr. Magill, as a practicing tax attorney, knows full well what class of taxpayer enjoys special advantages today—just as he knows all those special advantages backward and forward, with footnotes. The class of taxpayer to whom I refer is the taxpayer whose income is *unearned,* and whose tremendous and manifold "special advantages" over the man who *earns* what he gets constitute the greatest over-all inequity in our income tax law.

It is unearned income which goes untaxed forever when it comes from the ownership of state or municipal bonds. It is unearned income which goes untaxed for a time when corporate dividends are paid in stock, not cash, and which later is taxed (if it is taxed at all) only at the low rate for "capital gains." It is unearned income which similarly escapes high surtaxes whenever a corporation reinvests some of its profits for its stockholders, instead of paying those profits out as personally taxable dividends. It is unearned income—and only unearned income—which can be split among members of a family group by such surtax-reducing devices as the family trust or the intra-family assignment. And it is unearned income, though speciously labelled "long-term capital gain," which, no matter how colossal, is taxed at only a flat 25% rate—so that a stock speculator can make in a year $1,000,000—or $5,000,000—and keep for himself a larger share of it than can the man with a salary of $15,000.

About not a one of these "special advantages"—or others, more complex,

5. Rodell, *op. cit. supra* note 2.
6. Report, *op. cit. supra* note 3, at 7.
7. Cary, Book Review, 48 COL. L. REV. 302 (1948).
8. Report, *op. cit. supra* note 3, at 1, 2.

that might be here listed—does Mr. Magill make a single corrective proposal. Instead he makes several recommendations, a couple of them previously mentioned, which would, if adopted, enlarge still farther the flagrantly discriminatory gap between the tax treatment of incomes that are earned and those that are unearned. Yet it must be granted that one type of earned income, if only one, would stand to benefit from the adoption of these particular recommendations. That one, of course, is the income of any tax attorney whose practice consists in considerable part of advice to clients with sizable unearned incomes.

I believe that if I were Mr. Magill I would be a trifle more cautious than he about tossing at others the easy epithet, "advocate." I might think twice, too, before I pinned on myself—as does Mr. Magill, straight-faced, right in his report—a great big medal for approaching tax problems in a "non-partisan, objective spirit."

FRED RODELL†

AMERICA'S DESTINY. By Herman Finer. The Macmillan Company, 1947. Pp. 407. $5.00.

PROFESSOR FINER'S argument in *America's Destiny* deserves the special attention of American liberals. It employs conceptions and achieves conclusions which may still surprise some of them; but these conceptions and conclusions are increasingly characteristic of those parts of the world where the Communist threat to liberal values has become naked and urgent. Professor Finer writes, in other words, from the viewpoint of the non-Communist Left—a viewpoint more developed in Europe than in the United States. He expounds that viewpoint, it might be added, with a vigor, garrulity and crankishness all his own.

Professor Finer's credentials as a member of the Left were sufficiently established in *The Road to Reaction,* his polemic against Hayek's *The Road to Serfdom.* The fact that his detestation for Hayek is equalled by his detestation for Soviet Communism should surprise only the naive. "It is of the utmost importance," as he writes, "to reemphasize that the hostility between the Soviet Union and the Western nations and, above all, the United States, does not revolve principally around the structure of the economy, whether it is planned, or free, or partly one and partly the other. The issue is between the democratic and despotic form and spirit of government; between political liberty and political servitude." This should be clear by now; but the very existence of the Third Party movement shows that the identification of the Soviet cause with liberalism or socialism is still widespread in the United States. If you are a liberal, you apparently have to know Communism well, whether in the struggle for Europe or the struggle for the American labor movement, before you can dislike it.

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The basic thesis of *America's Destiny* may be stated simply. We cannot achieve world peace today, Professor Finer argues, by the establishment of a world state, because national differences are still too obstinate and fundamental to be removed by constitutional ingenuities. Consequently world peace must continue to rest upon the exercise, potential or actual, of national force. Only two powers are still capable of disposing of sufficient force, and they are engaged in a grim world-wide competition. The triumph of the USSR in this competition would mean the permanent destruction of political initiative and individual freedom, while a United States triumph would at least keep the possibility alive of growth toward world-wide democracy. A *pax Americana,* Professor Finer concludes, is therefore essential to the future of humanity.

In the short run, this means a United States policy of patience and firmness —a readiness to use our force boldly in defense of democratic interests without indulging in futile threats against legitimate Soviet interests. Professor Finer regards Churchill's action in Greece in December 1944, for example, as "decisive and healthy" (which it probably was, though the British policy which made this action necessary certainly was not) and develops an impressive argument in support of the considerations underlying the Truman Doctrine. But such policies, as Professor Finer recognizes, constitute only a holding action on behalf of free society; at best, they can only prevent the armed truce from declining into war.

What are the conditions for lasting peace? Professor Finer makes something of an innovation here in reviving Woodrow Wilson's contention that world organization must be founded on the basis of "self-governing" nations. To this Professor Finer adds the corollary argument that a world bill of rights is necessary to peace. This discussion parts company sharply from the current liberal notion, dug out of the closet to which it was consigned in 1939, that there is no reason why totalitarianism and democracy should not live happily ever after in the same world. Does Professor Finer's old-fashioned "we or they" view condemn us to the bleak perspective of perpetual conflict with the USSR?

Professor Finer refuses to be pessimistic. Though the Soviet rulers have used education primarily as a technique of indoctrination, they have none the less in Professor Finer's eyes raised up a weapon which may end by confounding them. "Heresy is bound to creep in, and may, one day, be embraced by millions." The two curves are crossing each other: the rising curve of war tension, the rising curve of Russian education. "It is a question of timing, so far unpredictable, whether the latter crosses the war-tension curve before the ignition point is reached. The argument leads at least to the pursuit of every device for prolonging the truce that does not throw away indispensable strategic assets, or sell other people into irrevocable servitude."

Professor Finer applies his argument almost exclusively to Europe but develops it in that area with a wealth of insight, illustration and invective. His book is a fascinating catch-all for significant political oddities of the last three

years, combined with shrewd argumentation, brash prediction (Yugoslavia is "destined most probably to be the point of origin of the next war") and a generous ventilation of the author's more special prejudices. He ranges boldly and broadly into a number of fields, with particular attention to international laws, poltical theory and geopolitics. If he neglects anything beside Asia, Africa and Latin America, it is economics. *America's Destiny,* indeed, has something of the political flair of Mr. Byrnes' foreign policy; but, like Mr. Byrnes, Professor Finer lacks a Marshall Plan. After all, the main theater of present United States action is in the field of economic reconstruction; and Professor Finer might well have inquired more deeply into the conditions of economic vigor necessary for free institutions. Some critics too will doubtless feel that Professor Finer left himself vulnerable by not taking up the possibility that the United States will go fascist under the pressures of the foreign policy he recommends. I would agree with what I take Mr. Finer's position to be—that the chances of this are small indeed; but the point probably merits more detailed analysis than it gets in *America's Destiny.*

But beneath the dogmatic and opinionated manner, the Europe-fixation and the occasional omissions and displacements of emphasis, remains a valuable core of hard common sense. American liberals will note that Professor Finer reasons in terms, not just of the ethics of free society (which he construes more seriously and rigorously than, for example, the Third Party does), but also of the actualities of strategy and power. This latter fact may shock the sentimentalists; but these terms are unhappily the terms of real life, as distinct from the liberal dream world. Nor are these terms incompatible with liberal objectives. Indeed, if liberals do not master the instruments of power, they will fall before those who do. Professor Finer sticks to his democratic values but knows they cannot triumph by virtue of their beauty or their logic alone.

Democratic socialism, he believes, has a better chance of developing out of democratic capitalism than out of totalitarian socialism. Many European socialists, faced with the actuality of a Soviet alternative, are coming to share this belief and in its light are revising their old impressions of America's capacity for world leadership. "The United States," as Professor Finer characteristically puts it, "is the chief salvation of the world." Let us hope that American capitalists recognize the obligation and the opportunity as fully as do the European socialists.

ARTHUR SCHLESINGER, JR.†

THE LOGIC OF THE SCIENCES AND THE HUMANITIES. By F. S. C. Northrop. New York: The MacMillan Company, 1947. Pp. 402. $6.00.

PROFESSOR NORTHROP has again contributed a work of great interest both to the student of the philosophy of science and to the student of world affairs. Despite undue repetitiveness, which is traceable to the fact that a good part of

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the book is composed of previously published essays, Professor Northrop's analysis merits intensive study. In his concern with the logical structure and methodology peculiar to the various natural and social sciences as well as to the humanities, Professor Northrop's aim seems to be twofold: a) to eliminate procedures and inferences based on conceptual confusion resulting from faulty analysis of the method appropriate to each specific type of subject matter, b) to utilize the knowledge of the logical structure and respective methodologies appropriate to the principal branches of human inquiry for the discernment of their inter-relations and thereby to suggest the solution of the major problems confronting the nations of the contemporary world.

The first step in Professor Northrop's approach to this problem is a determination of the procedure to be used in inquiry. Significantly he points out that there is disagreement on scientific method among Bacon, Descartes, Morris Cohen and Dewey because each is focussing on only one of several stages constituting the process of inquiry. Each stage, moreover, calls for its own characteristic method.

Dewey saw that all inquiry is initiated by a problem and pointed out that it is necessary to analyze the "problematic situation," in order to have a criterion for selecting among an infinite number of facts those which are relevant to the problem at hand. This analysis is the first stage of inquiry and must precede the collection of relevant facts, which is the second stage of inquiry, or the "natural history stage." It is characterized by the inductive method of Bacon, by which generalizations are drawn on the basis of examining a limited number of directly observable entities or events. The concepts employed in this stage are, therefore, largely descriptive and qualitative—*e.g.*, the genera and species of natural history biology constructed in terms of directly observable characteristics. This class of qualitative concepts, called "concepts by intuition," are concepts "the complete meaning of which is given by something that can be immediately apprehended."

When the problem of a given inquiry remains unsolved, despite the availability of all the relevant facts called for by the analysis of the problem, then the problem enters the third stage of inquiry. This third stage of inquiry is called the stage of deductively formulated theory, because in it formal logic is used to elicit the deductive consequences from postulates, advanced hypothetically to account for observed facts. In this stage, we encounter entities like "electron" and "electromagnetic wave" which are not observed *directly* but *inferred* only *indirectly*. Quantitative considerations and predictive power characterize this stage, and the logic employed in it involves the deduction of consequences from the proposed hypotheses for the purpose of checking them against observed facts, as in the verification of the theories of physics. Concepts like "electron," employed in the hypotheses of this stage of inquiry, are known as "concepts by postulation." These concepts have their entire meaning conferred on them by the postulates in which they occur, and must never be confused with "concepts by intuition" whose complete meaning is given through the direct apprehension of sensory fact.

Therefore, one is talking nonsense, when predicating a concept by intuition of a concept by postulation, as is done in the statement "electrons are pink." Again, one is talking nonsense when using interchangeably concepts by postulation which are taken from different deductively formulated theories and which have no more in common than the same verbal designation. The latter error is committed by the philologically oriented historian of philosophy or historian of ideas whom Professor Northrop chides for thinking that when Locke uses the term "mind," for instance, the same meaning is intended as when Thomas Aquinas uses that term.

Since the hypotheses of deductively formulated theories, as well as their deductive consequences, involve concepts by postulation, it follows that if such theories are to account for *observable* facts, some methodological principle is necessary to provide the transition from propositions about unseen entities to propositions about observable events of some kind. For instance, if, in a given experiment, the prediction is that the light of a visible light beam has a wave length of 4500 Angstoms, then we must have a correlation relation which tells us that the observed color called for is "blue." These relations the author calls "epistemic correlations." When setting up hypotheses of deductively formulated theories, it is therefore necessary to specify ahead of time the epistemic correlates for the unseen entities, postulated by the theory. The observable occurrence of these epistemic correlates will then constitute the verification of the theory.

When speaking of Western philosophic systems, the author says: "Almost all these systems are, or can be understood properly only when put in the form of deductively formulated systems. Hence, the concepts in most of them are concepts by postulation, not concepts by intuition."

It seems doubtful to this reviewer that more than isolated portions of these systems actually lend themselves to deductive formulation. Having assumed that such formulation is feasible, Professor Northrop infers that the concepts which occur in these systems are concepts by postulation, having the same cognitive status as those occurring in the theories of physics. In my view, some Western philosophic concepts, such as Plato's "matter," are concepts by postulation only in the negative sense that their meaning, if any, is not given through sensory perception. Furthermore, appropriately and systematically defined epistemic correlations, through which contact is made with experience, are often totally lacking; thereby the most elaborately deductive philosophy is rendered a mere exercise in tautology. William James points out another important example of a western philosophic system which does not lend itself to deductive formulation. In German Idealism, the "Absolute Mind" is alleged to be the rational presupposition of all particulars of fact whatever they may be and remains quite unaffected by what the particular facts in our world actually are. Says James: "Be they what they may, the Absolute will father them."

Even as internally consistent a system of philosophy as that of Thomas Aquinas has only the skeleton, but not all the essential characteristics of a

deductively formulated theory. Thus, some excellent neo-Thomist logicians are able to accept without qualification the Newtonian and Einsteinian physics in place of the physics of Aristotle, while clinging confidently to the philosophy of Thomas. On Mr. Northrop's analysis of Thomism as a deductively formulated system, logically dependent on the Aristotelian physics, and cognitively on a par with Aristotelian physics, it should not be too difficult to convince the distinguished mathematical physicist Abbé Lemaître, for instance, that he must repudiate the official philosophy of catholicism along with the physics of Aristotle. Since Lemaître's repudiation of the former seems unlikely, we can agree with Professor Northrop's characterization of Western philosophic systems as deductively formulated only in the sense that the meaning of the concepts occurring in them is not given through the apprehension of sensory fact. I believe that this characterization applies even to Spinoza who argues *more geometrico*.

When discussing the treatment that social scientists accord concepts by postulation which occur in philosophic systems, the author says: "The meaning of a concept by postulation has nothing whatever to do with the previous historical contextual circumstances which led the scientist to postulate it. With respect to the meaning of such concepts, the emotional and family life of the positor is irrelevant; as are also previous historical social events or the so-called class-conflict."[1]

We can grant that the *meaning* of a concept by postulation, once postulated, is wholly exhausted by its defining properties in the deductive theory in which it occurs, and that, as such, it is logically devoid of the associations of wider context which adhere to the concept by intuition. We ask at once, however, is it the *meaning* of a concept by postulation that the social scientist has in mind, when he claims that historical considerations are relevant to the proper understanding of a normative ideological theory employing concepts by postulation? Instead, his question is: what has guided thinkers in the choice of the content of their concepts by postulation? If Professor Northrop regards this question as psychological, it is nonetheless one of tremendous importance to an understanding of the genesis of concepts in response to the social and historical context in which they were born.

Professor Northrop accepts Hume's characterization of purely empirically given knowledge to the effect that such knowledge exhibits no necessary connections. From this, he deduces that "a science which restricts itself to directly observable entities and relations automatically loses predictive power. The science tends, even when deductively formulated, to be merely descriptive and to accomplish little more so far as prediction is concerned than to express the hope that the sensed relations holding between the entities of one's subject matter today will recur tomorrow."[2]

On the other hand, with regard to the connections postulated to hold between concepts by postulation, the situation is radically different in Professor

1. NORTHROP, THE LOGIC OF THE SCIENCES AND THE HUMANITIES 69 (1947).
2. *Id.* at 115.

Northrop's view. In this realm, he tells us, we achieve predictive power on the basis of necessary connections of logical implication holding between states of a system. Here he sees a situation of genuine causality. He then cites, on the one hand, the absence of a theoretical dynamics in Austrian School economics, employing concepts by intuition, and, on the other, the existence of such a dynamics in mathematical physics as supporting evidence for his estimate of the relative merits of sensory and postulational knowledge.

We can agree that historical experience with various sciences does indicate that in the sciences developed so far the significant variables which made possible a theoretical dynamics were concepts by postulation. Economics may be a case in point, if it fails to achieve a theoretical dynamics by the use of concepts by intuition. Professor Northrop offers no convincing logical evidence, however, to show that concepts by postulation are in principle indispensable to the achievement of a theoretical dynamics for *any science whatever*. Nor does he show that the postulated connections expressed by the synthetic propositions of physics can be believed to be necessary or universal with any greater warrant than exists for the hope that the sensed relations holding between the entities of sensory experience will recur tomorrow. Professor Northrop seems to have forgotten his maxim that the subject matter ought to determine the method; also he seems to be asserting that a problem of induction exists only for the natural history stage of inquiry but not for the stage of deductively formulated theory.

The perennial body-mind problem of philosophy receives a very interesting treatment. The author reasons that if we restrict ourselves to concepts by intuition when using the words "body" and "mind," then "there are not two different realms or two different entities given; instead there is one continuum of diverse factors presented with immediacy. No line can be drawn in the realm of the immediately apprehended between a pain which we are wont to speak of as psychical and the yellow patch in the sky denoted by the symbol 'sun' which we sometimes refer to as physical. . . . All such directly apprehended factors are ineffable. . . . In the realm of the immediately given, denoted by concepts by intuition, there is no inner and outer, no subjective and objective, no distinction between the mental and the bodily; there is merely the all-embracing aesthetic continuum with its aesthetic qualitative differentiations."[3]

On the other hand, in the realm of the postulated, "mind" in the sense of a postulated mental substance is so ambiguous and empty a concept that "nothing of any definiteness can be deduced from it." We are left, therefore with "mind" only as a concept by intuition, and then Professor Northrop would have us find epistemic correlates in the realm of postulated physicochemical entities for all immediately apprehended aspects of consciousness, whether they be given through the "outer" senses or introspectively.

This position requires the abandonment of the body-mind dualism and its

3. *Id.* at 195–6.

replacement by a different dualism between the "immediately apprehended component of the person denoted by concepts by intuition" and all the processes of nature, inside and outside of man, which are postulated and verified by deductively formulated science.

One cannot help but feel that Professor Northrop's attack on the body-mind problem, though not beset by the elusiveness of most of the traditional "solutions," is incomplete at the crucial point. By assigning the status of a methodological principle to epistemic correlation, he avoids the necessity of providing contact between the two heterogeneous worlds. Contact, rather than mere correlation, would still seem to be the philosophic ideal.

When dealing with the question of the possibility of using scientific method in the construction of a publicly valid social and personal ethics, which defines the good state, Professor Northrop presents a brilliant analysis. The significance of that analysis lies not only in its penetrating critique of the contemporary ethical theory of G. E. Moore but also in the constructive proposals which he makes for using science and scientific philosophy to lead us to sanity out of the abyss of contemporary unreason. It is probably too much to expect that either those who call science a false messiah or vested interests of various kinds will pay heed to his argument, however cogent it may be. If one could hope that some of the world's statesmen will consider his proposals, a greater measure of confidence in the future would be justified.

To his mind, the task of ethics is not, as G. E. Moore would have it, to elicit from our actual valuations the implicit meaning of "good" which we employ in them, but rather to specify what standard is called for. Neither is it the task of ethics to discover how people in fact do behave. "The good is neither a fact nor a meaning."[4]

If I understand his excessively general statements correctly, the author proposes that the various sciences, treating man as a complex entity in nature, define what is *intrinsically* good for man on the basis of the sum total of his scientifically ascertainable needs. Man needs food, security, affection from his fellow man, knowledge, etc. Once these intrinsic goods have been laid down as *desiderata,* it becomes again a scientific problem to define the *instrumental* goods, *i.e.,* the modes of social organization and personal conduct which are conducive to the maximum attainment of the intrinsic goods. When the question comes up as to whether it is right that one man employ another for his personal profit, it is not to be settled by an armed contest between the United States and the Soviet Union but by a consideration of whether private enterprise or some form of collectivism achieves a greater measure of the intrinsic goods.

There is no rigidity in the prescriptions of Professor Northrop's "normative social theory," as he calls ethics. As the sciences give us new insight into the workings of nature and into man's nature, we must revise the mode of social organization and personal ethics and repudiate anachronisms without

4. *Id.* at 296.

compromise. If science is permitted to revolutionize only technology, while the social theory on which society rests remains unaltered, grave dislocations result. It was because the United States operated simultaneously on the basis of labor-saving 20th century physics and on the monetary theory required by 17th or 18th century social theory that "the American culture found itself, immediately before the present war, in the paradoxical position of having millions faced with starvation, while the food that would assuage their hunger rotted in the granaries."[5]

Both Roman Catholicism and modern Protestantism are rejected by the author as incompetent to provide an ethics adequate to the demands of the social problems of our time. His rejection of Roman Catholicism is based on the fact that its conception of the good is based on a philosophy derived from the Aristotelian physics and medieval society. Modern Protestantism is not acceptable to him because its ethics claims to be autonomous, to have "grounds of justifications quite independent of natural science. . . . Such a morality . . . may perchance give one an egocentric personal ethics and a subjective personal religion, but it is not adequate to generate and provide the objective social and international instruments necessary to control the atomic bomb."[6]

The author's constructive proposal for religion of the Western theistic type is to identify the timeless entities and relations discovered by science with the objects of religion so that "once those identifications are made, the meaning of doctrines like God the Father, the immortality of the soul, and the divinity of the prophet take on empirically verified scientific content and meaning."[7] This proposal seems utterly unconvincing. What is to be gained by setting up a dictionary whereby we can "identify" the relations of a unitary field theory, for instance, as "God the Father?" The educated man will hardly feel any greater awe for the spectacle on high as a result of such a procedure, and the man in the street who does not experience any thrill whatever in the contemplation of the encompassing nature of the unitary field theory will merely continue to assign the traditional, elusive meanings to these religious terms.

Finally, the reviewer feels mention should be made of Professor Northrop's stimulating chapter entitled "Educational Method for World Understanding." Its proposals merit serious consideration by all college presidents.

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5. *Id.* at 290.
6. *Id.* at 365.
7. *Id.* at 382.

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